

Mixtures

Combination of two or more substances that are not chemically combined.

- no chemical reaction
- no chemical change – each part of the mixture keeps its properties
- can be separated by physical means
- no definite ratio of substances

Examples

Pizza with toppings

Sugar added to iced tea or coffee



Mixtures	Compounds
Made of elements, compounds or both	Made of elements and simple compounds
No change in properties of components-physical change	Change in original properties of components-chemical change
Separated by physical means	Separated by chemical means
Formed by any ratio of components	Formed using a specific ratio of components

Solutions

- composed of particles of two or more substances
- evenly distributed among each other
- appear to be a single substance
- process is called dissolving
- particles are extremely small. They cannot be removed by filtering and do not scatter light

Solubility

The ability of a solute to dissolve in a solvent at different temperatures



Lemonade

Parts of a Solution

Solute

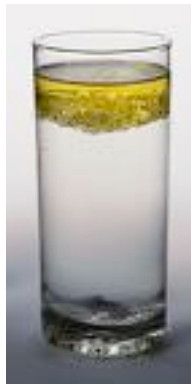
- the substance that is being dissolved
- ex salt

Solvent

- the substance that the solute is being put into
- ex water

In order to form a solution a substance must be soluble or able to dissolve in the solvent. Salt *is soluble* in water.

Oil *is not soluble* in water



Examples of Solutions

Air (oxygen dissolves in nitrogen)

Soda (carbon dioxide dissolves in water)

Antifreeze (alcohol dissolves in water)

Salt Water (salt dissolves in water)

Brass (zinc dissolves in copper)

Alloys



Concentration of Solution

- expressed in **g of solute /ml of solvent**

Diluted

More solvent, less solute “weak”

Concentrated

More solute, less solvent “strong”



Dissolving solids in liquids faster

- mix the solid in the liquid
- heat the total solution
- crush the solute before mixing in the solvent

Gases are harder to dissolve in liquids at higher temperatures. This is why soda goes flat faster when it is warm.

Suspensions

A mixture where the particles of a material are too big and settle out of the solvent without mixing completely.

Particles are large, can scatter light and can be filtered out.

Example Snow globe or Salad dressing



Colloids

- have properties between solutions and suspensions
- particles are small and well mixed (like a solution)
- particles do not mix completely (like a suspension)
- particles can scatter light but cannot be filtered out
- Examples – milk, mayo, whipped cream, Jell-o
- Their particles are used as models for atoms because of their similar properties

